AMENDMENTS TO THE CLAIMS

Please cancel Claim 15, without prejudice. Please amend Claim 12, 67, and 70, and add new Claims 80-99 as follows.

Claims 1-11 (cancelled).

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12.(currently amended): A method of treating irritable bowel syndrome, fibromyalgia, chronic fatigue syndrome, depression, attention deficit/hyperactivity disorder, or ~~an autoimmune disease selected from the group consisting of~~ multiple sclerosis ~~and systemic lupus erythematosus~~, comprising:

detecting the presence of small intestinal bacterial overgrowth in a human subject having at least one symptom associated with a suspected diagnosis of irritable bowel syndrome, fibromyalgia, chronic fatigue syndrome, depression, attention deficit/hyperactivity disorder, or ~~an autoimmune disease selected from the group consisting of~~ multiple sclerosis ~~and systemic lupus erythematosus~~; and at least partially eradicating the bacterial overgrowth, whereby the at least one symptom is improved.

13.(original): The method of Claim 12, wherein an antimicrobial agent or probiotic agent is used to at least partially eradicate the bacterial overgrowth or prevent further bacterial overgrowth.

14.(original): The method of Claim 13, wherein the probiotic agent is a species of *Bifidobacterium* or *Lactobacillus*.

Claim 15 (cancelled).

16.(original): The method of Claim 13, wherein the antimicrobial agent is an antibiotic.

17.(original): The method of Claim 13, wherein the antimicrobial agent is neomycin, metronidazole, teicoplanin, ciprofloxacin, doxycycline, tetracycline, augmentin, cephalexin, penicillin, ampicillin, kanamycin, rifamycin, rifaximin, or vancomycin.

18.(original): The method of Claim 13, wherein the antimicrobial agent is a 4-amino salicylate compound or a 5-aminosalicylate compound.

19.(original): The method of Claim 13, wherein the probiotic agent comprises an inoculum of a species or strain of *Bifidobacterium* or *Lactobacillus*.

20.(original): The method of Claim 13, wherein the probiotic agent is *Bifidobacterium* sp., *Lactobacillus acidophilus*, *Lactobacillus rhamnosus*, *Lactobacillus plantarum*, *Lactobacillus reuteri*, *Lactobacillus paracasei* subsp. paracasei, or *Lactobacillus casei* Shirota.

21.(original): The method of Claim 12, wherein an intestinal lavage or enema is used to at least partially eradicate the bacterial overgrowth.

22.(original): The method of Claim 12, wherein the bacterial overgrowth is at least partially eradicated by increasing the human subject's phase III interdigestive intestinal motility.

23.(original): The method of Claim 22, wherein increasing the human subject's phase III interdigestive intestinal motility is accomplished by modifying the human

subject's diet or by administering to the human subject a chemical prokinetic agent, whereby phase III interdigestive intestinal motility of the human subject is increased.

24.(original): The method of Claim 23, wherein the prokinetic agent is a peptide, a macrolide compound, a bile acid, a bile salt, a cholinergic compound, a dopamine antagonist, a nitric oxide altering agent, a 5-HT receptor antagonist, a neuroleptic agent, a kappa agonist, or an antihistamine except ranitidine, famotidine, or nizatidine.

25.(original): The method of Claim 23, wherein the prokinetic agent is cisapride, metoclopramide, domperidone, bethanechol, erythromycin, azithromycin, nomega-nitro-L-arginine methylester, or N-monomethyl-L-arginine, ondansetron, alosetron, promethazine, meclizine, prochlorperazine, chlorpromazine, haloperidol, or fedotozine.

26.(previously amended): The method of Claim 24, wherein the bile acid is ursodeoxycholic acid or chenodeoxycholic acid, and the bile salt is a sodium or potassium salt of ursodeoxycholate or chenodeoxycholate.

27.(previously amended): The method of Claim 12, further comprising administering to said human subject an antagonist of a pro-inflammatory cytokine or an antibody that specifically binds an inflammatory cytokine, simultaneously with or after at least partially eradicating small intestinal bacterial overgrowth in the human subject.

28.(original): The method of Claim 27, wherein the pro-inflammatory cytokine is TNF-α, IL-1α, IL-1β, IL-6, IL-8, IL-12, or LIF.

29.(previously amended): The method of Claim 12, further comprising administering to said human subject an anti-inflammatory cytokine or an agonist thereof,

simultaneously with or after at least partially eradicating small intestinal bacterial overgrowth in the human subject.

30.(original): The method of Claim 29, wherein the anti-inflammatory cytokine is IL-4, IL-10, IL-11, or TGF-β.

Claims 31-55 (cancelled).

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56.(previously amended): The method of Claim 12, wherein the symptom is hyperalgesia related to small intestinal bacterial overgrowth (SIBO).

57.(previously amended): The method of Claim 56, further comprising alleviating or improving the hyperalgesia related to small intestinal bacterial overgrowth (SIBO) by administering an agent that modifies afferent neural feedback or sensory perception.

58.(original): The method of Claim 57, wherein the agent that modifies afferent neural feedback or sensory perception is a 5-HT receptor antagonist, an opiate agonist, peppermint oil, cisapride, a dopamine antagonist, an antidepressant agent, an anxiolytic agent, or a combination of any of these.

59.(original): The method of Claim 58, wherein the dopamine antagonist is domperidone.

60.(original): The method of Claim 58, wherein the opiate agonist is fedotozine.

61.(original): The method of Claim 58, wherein the 5-HT receptor antagonist is ondansetron or alosetron.

62.(original): The method of Claim 58, wherein the antidepressant agent is a tricyclic antidepressant, tetracyclic antidepressant, a serotonin re-uptake inhibitor, a monoamine oxidase inhibitor, trazodone, venlafaxine, mirtazapine, nefazodone, or bupropion.

63.(original): The method of Claim 62, wherein the tricyclic antidepressant is amitriptyline and the tetracylic antidepressant is maprotiline.

64.(original): The method of Claim 62, wherein the monoamine oxidase inhibitor is phenelzine.

65.(original): The method of Claim 62, wherein the serotonin re-uptake inhibitor is fluoxetine or sertraline.

66.(original) The method of Claim 58, wherein the anxiolytic agent is a benzodiazepine compound.

67.(currently amended): A method of treating irritable bowel syndrome, fibromyalgia, chronic fatigue syndrome, depression, attention deficit/hyperactivity disorder, ~~an autoimmune disease~~multiple sclerosis, or Crohn's disease, comprising:

detecting the presence of small intestinal bacterial overgrowth in a human subject having at least one symptom associated with a suspected diagnosis of irritable bowel syndrome, fibromyalgia, chronic fatigue syndrome, depression, attention deficit/hyperactivity disorder, ~~an autoimmune disease~~multiple sclerosis, or Crohn's disease; and

at least partially eradicating the bacterial overgrowth by administering to the human subject a chemical prokinetic agent selected from the group consisting of a peptide, a macrolide compound, a bile acid, a bile salt, a cholinergic compound, a dopamine antagonist, a nitric oxide altering agent, a 5-HT receptor antagonist, a neuroleptic agent, a kappa agonist, or an antihistamine except ranitidine, famotidine, or nizatidine, whereby phase III interdigestive intestinal motility in the human subject is increased and the bacterial overgrowth is thereby at least partially eradicated, and whereby the at least one symptom is improved.

68.(previously added) The method of Claim 67, wherein the prokinetic agent is cisapride, metoclopramide, domperidone, bethanechol, erythromycin, azithromycin, nomega-nitro-L-arginine methylester, or N-monomethyl-L-arginine, ondansetron, alosetron, promethazine, meclizine, prochlorperazine, chlorpromazine, haloperidol, or fedotozine.

69.(previously added): The method of Claim 67, wherein the bile acid is ursodeoxycholic acid or chenodeoxycholic acid, and the bile salt is a sodium or potassium salt of ursodeoxycholate or chenodeoxycholate.

70.(currently amended): A method of treating irritable bowel syndrome, fibromyalgia, chronic fatigue syndrome, depression, attention deficit/hyperactivity disorder, ~~an autoimmune disease~~multiple sclerosis, or Crohn's disease, comprising:

detecting the presence of small intestinal bacterial overgrowth (SIBO) in a human subject having hyperalgesia associated with a suspected diagnosis of irritable bowel syndrome, fibromyalgia, chronic fatigue syndrome, depression, attention deficit/hyperactivity disorder, ~~an autoimmune disease~~multiple sclerosis, or Crohn's disease; and

alleviating or improving the hyperalgesia by administering an agent that modifies afferent neural feedback or sensory perception, whereby the hyperalgesia is improved.

71.(previously added): The method of Claim 70, wherein the agent that modifies afferent neural feedback or sensory perception is a 5-HT receptor antagonist, an opiate agonist, peppermint oil, cisapride, a dopamine antagonist, an antidepressant agent, an anxiolytic agent, or a combination of any of these.

72.(previously added): The method of Claim 71, wherein the dopamine antagonist is domperidone.

73.(previously added): The method of Claim 71, wherein the opiate agonist is fedotozine.

74.(previously added): The method of Claim 71, wherein the 5-HT receptor antagonist is ondansetron or alosetron.

75.(previously added): The method of Claim 71, wherein the antidepressant agent is a tricyclic antidepressant, tetracyclic antidepressant, a serotonin re-uptake inhibitor, a monoamine oxidase inhibitor, trazodone, venlafaxine, mirtazapine, nefazodone, or bupropion.

76.(previously added): The method of Claim 75, wherein the tricyclic antidepressant is amitriptyline and the tetracylic antidepressant is maprotiline.

77.(previously added): The method of Claim 75, wherein the monoamine oxidase inhibitor is phenelzine.

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78.(previously added): The method of Claim 75, wherein the serotonin re-uptake inhibitor is fluoxetine or sertraline.

79.(previously added): The method of Claim 71, wherein the anxiolytic agent is a benzodiazepine compound.

Please add new Claims 80-99.

--Claim 80 (new): The method of Claim 12, wherein the suspected diagnosis is irritable bowel syndrome.

Claim 81 (new): The method of Claim 12, wherein the suspected diagnosis is fibromyalgia.

Claim 82 (new): The method of Claim 12, wherein the suspected diagnosis is chronic fatigue syndrome.

Claim 83 (new): The method of Claim 12, wherein the suspected diagnosis is depression.

Claim 84 (new): The method of Claim 12, wherein the suspected diagnosis is attention deficit/hyperactivity disorder.

Claim 85 (new): The method of Claim 12, wherein the suspected diagnosis is multiple sclerosis.

Claim 86 (new): The method of Claim 67, wherein the suspected diagnosis is irritable bowel syndrome.

Claim 87 (new): The method of Claim 67, wherein the suspected diagnosis is fibromyalgia.

Claim 88 (new): The method of Claim 67, wherein the suspected diagnosis is chronic fatigue syndrome.

Claim 89 (new): The method of Claim 67, wherein the suspected diagnosis is depression.

Claim 90 (new): The method of Claim 67, wherein the suspected diagnosis is attention deficit/hyperactivity disorder.

Claim 91 (new): The method of Claim 67, wherein the suspected diagnosis is multiple sclerosis.

Claim 92 (new): The method of Claim 67, wherein the suspected diagnosis is Crohn's disease.

Claim 93 (new): The method of Claim 70, wherein the suspected diagnosis is irritable bowel syndrome.

Claim 94 (new): The method of Claim 70, wherein the suspected diagnosis is fibromyalgia.

Claim 95 (new): The method of Claim 70, wherein the suspected diagnosis is chronic fatigue syndrome.

Claim 96 (new): The method of Claim 70, wherein the suspected diagnosis is depression.

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Claim 97 (new): The method of Claim 70, wherein the suspected diagnosis is attention deficit/hyperactivity disorder.

Claim 98 (new): The method of Claim 70, wherein the suspected diagnosis is multiple sclerosis.

Claim 99 (new): The method of Claim 70, wherein the suspected diagnosis is Crohn's disease.--.